



504996

SEWAGE SLUDGE DISPOSAL

*File, Monroe.
Post Authority
Landfill.*Monroe

At the last meeting, held on November 8, 1968, at the Lansing office of the Michigan State Health Department, the problem of sludge disposal was discussed in regard to the proposed Secondary Sewage Plant addition in Monroe.

Due to the troubles incurred by the State of Michigan, and in particular the State Department of Health because of their approval of the method of Sludge Disposal for the City of Kalamazoo, it was found that the Department of Health and Water Resources Commission staff was very reluctant to approve any method short of our building an expensive incinerator as an adjunct to our Secondary Sewage Treatment Plant. This would not only add a considerable initial cost, but also add a large amount to our annual operating cost.

The problem incurred by the City of Kalamazoo was one of odor, which subjected them to numerous lawsuits. It also prompted a petition to the Governor signed by hundreds of people.

Because of the problem in Kalamazoo, the City of Monroe was advised that it could not use the open sludge lagoons for sludge disposal. Following this, our thoughts were directed towards other methods of sludge disposal. Sludge incineration was considered along with burial with domestic wastes in a sanitary landfill, or by separate burial in an open face or slit-trench fill.

The economics of the several methods were analyzed and it was decided that the incineration method would cost 1.5 - 2.0 million dollars of capital cost and \$300,000. to \$500,000. of operating expenses which might include the disposal of about 30% by volume of

The three towns have agreed to include design of combustion facilities.

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Monroe Twp.
Frenchtown Twp.
Jury - Eng

ash to be disposed in some fill area yet to be determined.

This high cost of incineration caused us to look at sludge burial as the most economical method of disposal. In our study we have found that the two most common practices of all cities was by incineration or by landfill. Incineration is most common in larger cities and landfill in the medium and smaller cities. There is a slight increase in the incineration method, but the burial of sludge is so common and economical that it is here to stay for a number of years in all parts of the country. The disposal of sludge by the burial method is still a common practice throughout the Midwestern states by existing plants including Michigan and ^{they} are continuing this practice in accordance to state regulations. There are problems with landfill disposal of sludge mostly from a high theoretical plane, but these problems can be solved by the use of good practical methods, control, experimentation, and the use of any new development or technology developed for sludge disposal in the future. Greater strides are being made today along these lines than in the last 50 years. We have faith that a major breakthrough is imminent.

odges
1/14/51

As we have pointed out before this, the local industries, Frenchtown Township, Monroe Township, and the City of Monroe are not able to finance immediately the added burden of a sludge incinerator piled on the debts incurred by the construction of a Secondary Sewage Treatment Plant which could well be the most expensive per capita cost in the country.

It should also be remembered that the paper mills are faced with the added cost and maintenance of a primary system, along with

the cost of operation of the Secondary Treatment Plant.

The Townships will be required to build many miles of sewers for a collection system as well as trunk lines to transport the sewage to the Secondary Plant.

The City of Monroe also is required by stipulation to build and repair many of its own sewers and appurtenances to eliminate combined sewers as well as eliminate infiltration. An added burden of the City of Monroe is the fact that we will be subsidizing the construction of the plant for the Townships during the early part of the bond issue.

Therefore, it is our opinion from what we have seen, heard, read and partly mentioned in the above, that it is possible to bury sewage sludge if proper care is taken. We believe that this is possible as it is done in many other areas with good and reasonable rules of the State Health Department. *(one side)*

We believe that sludge can be disposed with domestic refuse and paper mill cutting wastes if the amount of sludge waste is not excessive. It should be covered with not less than two feet of earth or sand cover. *(when)*

As an alternate, slit trenches can be used with not over two or three feet of sludge buried with two, three, or four feet of cover and light equipment used for leveling of the cover material. Heavy equipment could be used off the side, on solid ground, to dig the slit trenches. So-called squashing and upheaval of the sludge material can be minimum or non-existent. *(how?)*

We believe that the Michigan State Health Department can safely

approve one or both methods of sludge disposal, especially when this is done in isolated areas. (If and when problems do occur, we will endeavor to rectify the matter to meet the ^{correction.} rules and regulations of the State.) ~~how -~~ ?

It is our recommendation at this time to obtain approval by the landfill method until we are financially able to go to the incineration or other method which will be the ultimate solution of our domestic refuse problem as well as our sludge disposal problem.

We do not feel that it is unreasonable to ask the indulgence of the State in a sincere, well-planned trial of sludge disposal by other than the necessity of our spending large amounts of money for incineration.

It should also be reiterated that increased costs to the project are a real and probable threat to the loss of the entire project by withdrawal of some or all of the present participants.

Most important to the City, Townships and paper mills is the very real possibility of losing the EDA funds which represent 50% of the total cost. This loss, plus any additional cost, would have to be borne locally. We have also been advised that the City of Monroe would not be eligible for any State funds from the recently voter approved bond issue.

ALTERNATE PLANS TO SLUDGE DISPOSAL

PLAN ONE: COMBINED TRASH AND SLUDGE

1. Sludge from primary settling would be digested.
2. Sludge from activated treatment would not be digested.
3. The two sludges would be combined in a holding tank prior to vacuum filtration.

Liquid content controlled

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4. The filtered sludge would be conveyed to a hopper for temporary storage. Hopper would have drain at base to remove any liquid; vacuum could be used to assist any accumulation.
5. When hopper was full, it would be dumped into a truck. (Truck would be constructed to preclude any leaking or loss of material)
6. Truck would take sludge to landfill and be combined with domestic refuse. Material would be placed in the trench in the following approximate method: one foot of sludge; two feet of refuse; one foot of sludge; two feet of refuse; followed by four feet of cover which would come from the next trench excavation.
7. Deodorants and/or disinfectants ^{fly control} could be applied as may be required.

PLAN TWO: LANDFILL OPERATION WITH SLUDGE ONLY

^{fly control}
Trenches - 10-12 ft wide

1. A slit trench would be excavated to a depth of about five feet.
2. A wheel stop would be laid and secured about two feet from the edge of the open side of the trench - which would prevent the trucks from accidentally backing into the trench.
3. A layer of six (6) or more inches of sand could be placed on the bottom of the trench to absorb moisture when and if needed.
4. Trucks would discharge sludge directly into the trench to fill the lower three feet. Sludge would be leveled by the use of a dragline.
5. Trench would be covered with spoil and leveled with a dragline. This would preclude any displacement of sludge by heavy equipment. The cover material will be obtained from the next trench excavation. how much cover - 2 ft of cover minimum
6. A temporary storage area, with a hard surface, would be provided at the landfill site for emergency use. A front-end loader could be available on site for material rehandling.
7. Modifications for operational improvements would be made as experience and conditions may warrant.

your ground?

possible?

population
from 3200000.

future use of land area
what kind of isolation
Solid waste - 17,000
9-11,000 Home